

WHAT IS CLAIMED IS:

1. A method of dynamically compensating for signal loss and dispersion in an optical signal traversing through an optical network; comprising:

providing a dynamic gain equalization filter (DGEQ) having a dynamically adjustable transfer function;

providing a first optical amplifier and a second optical amplifier interconnected by the DGEQ to form a dynamic amplifier site in the optical network; and

controlling spectral power profile of the optical signal at an output of the dynamic amplifier site by dynamically adjusting a transfer function associated with the DGEQ.